No. 889,462. PATENTED JUNE 2, 1908.

L. P. HELM.

VETERINARY TOOTH FILE.

APPLICATION FILED MAR. 30, 1908.

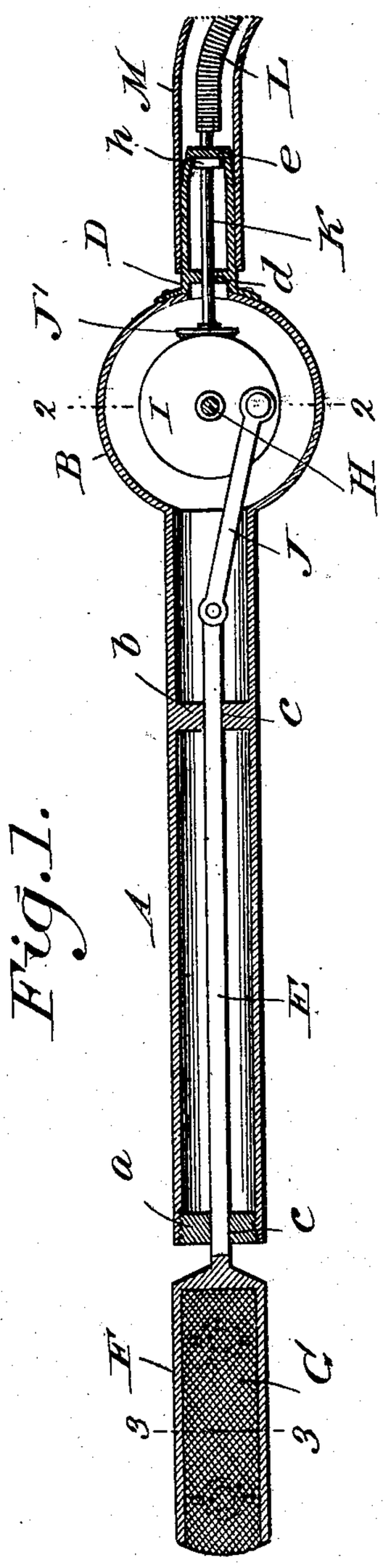

Fig. 1.

Fig. 3.

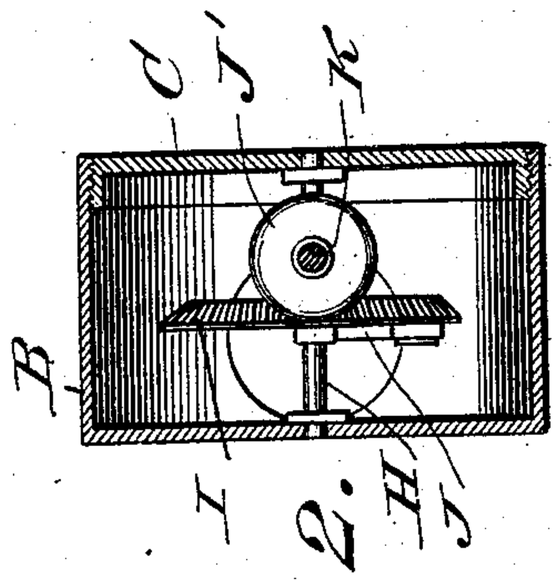

Fig. 2.

WITNESSES:

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VETERINARY TOOTH-FILE.

No. 889,462. Specification of Letters Patent. Patented June 2, 1908.

Application filed March 30, 1908. Serial No. 424,182.

To all whom it may concern:

Be it known that I, LOUIS P. HELM, citizen of the United States, residing at Baraboo, in the county of Sauk and State of Wisconsin, have invented new and useful Improvements in Veterinary Tooth-Files, of which the following is a specification.

My invention pertains to veterinary tooth files; and it has for its object to provide a simple and strong instrument of the kind stated constructed with a view of being driven by a motor and this in such manner that it will file in all places with the same force and effect.

The invention will be fully understood from the following description and claims, when the same are read in connection with the drawings, accompanying and forming part of this specification, in which:

Figure 1 is a view partly in longitudinal section and partly in elevation of the veterinary tooth file constituting the best practical embodiment of my invention of which I am aware. Fig. 2 is an enlarged transverse section taken in the plane indicated by the line 2—2 of Fig. 1 and showing the gear casing of the instrument and the parts therein. Fig. 3 is a transverse section taken in the plane indicated by the line 3—3 of Fig. 1 and showing the file blade and the holder therefor and the means for fixing the blade in the holder.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A is the handle of my novel veterinary instrument, which is tubular in form and of about the proportional length illustrated. The said handle A is closed at its forward end by a plug *a* and is provided at an intermediate point of its length with a partition *b*, and in the said parts *a* and *b* are provided longitudinally disposed, alined apertures *c* of angular form in cross-section. At its rear end the handle A is provided with the major portion B of a gear casing, which major portion is preferably integral with the handle and is closed at one side through the medium of a plate C threaded in the major portion as shown in Fig. 2. The said major portion B of the gear casing is provided at a point diametrically opposite the handle A with a nipple D, and the said nipple which is fixed with respect to the casing portion B in the manner shown or any other manner consonant with the purpose of my invention, is provided at *d* with a bearing and is closed at its rear end, as indicated by *e*, for a purpose presently set forth.

E is a rod, of angular form in cross-section, movable rectilinearly in the apertures *c* of the handle A but prevented from turning about its axis in said apertures. At its forward end the said rod E is provided with a holder F having inwardly directed side flanges *f* and also having one, or a plurality of set screws *g*, and in the said holder is arranged and removably secured by the said set screws a file blade G. Thus it will be manifest that while there is no liability of the file blade being casually displaced while the instrument is in use, yet when deemed expedient the said file blade may be readily removed and as readily replaced with a coarser or finer blade as the case in hand may require.

Journaled in the gear case at the rear end of the handle A is a transverse shaft H, and on the said transverse shaft is mounted a combined crank wheel and miter gear I which is connected through a pitman rod J with the rear end of the rectilinearly movable rod E. The miter gear I is for connection with a miter gear J′ on the forward end of a longitudinal shaft K journaled in the nipple D and having an abutment *h* bearing against the rear end of the nipple, whereby said shaft is held against rearward movement and the gear J′ is retained in mesh with the gear I. The rear end of the shaft K is for the connection of a flexible, power transmitting shaft L which is designed to be connected with a suitable motor (not shown). It will also be observed by reference to Fig. 1 that I prefer to arrange the flexible shaft L in a flexible tube M which latter is suitably secured on and extends rearward from the nipple D.

In the practical use of my novel instrument, the operator grasps the handle A and uses the said handle to manipulate the file blade G and to hold the said file blade to its work incidental to the reciprocation of the blade, the blade holder and the rod E, which reciprocation is effected by the connection between the gear I and the rod E; the said gear I deriving motion from the shaft K, which shaft K derives motion from the flexible shaft L in the ordinary, well known manner. It will also be observed that the reciprocation of the file blade G will be regular under all conditions, and that such reciprocation may be made very rapid when the same is desirable. It will further be observed that the file or abrading blade G may

be made to file with the same force and effect in all places, which is an important advantage.

In addition to the foregoing practical advantages, it will be noted that my novel instrument is very compact, and for this reason may be conveniently manipulated and held in various positions in the mouth of a horse or other animal.

The construction herein illustrated and described constitutes the best practical embodiment of my invention of which I am cognizant, but it is obvious that in the future practice of the invention minor modifications may be made within the scope of my invention as defined in the claims appended.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. In a veterinary tooth file, the combination of a hollow handle having a gear case at its rear end, a reciprocatory rod guided longitudinally and held against turning in said handle, a file blade connected and movable with the forward end of the rod, a shaft extending rearward from the said gear case, a flexible shaft connected with the rear portion of the first mentioned shaft, and means intermediate the first mentioned shaft and the rod for converting the rotary motion of the shaft into reciprocatory motion and moving the rod forward and back.

2. In a veterinary tooth file, the combination of a hollow handle having a gear case at its rear end, a nipple fixed to and extending from the gear case at a point diametrically opposite the handle, a reciprocatory rod guided longitudinally and held against turning in the handle, a file holder on the forward end of said rod, a file blade detachably secured in said holder, a longitudinal shaft journaled and held against rearward movement in said nipple, a flexible shaft connected with the rear end of the first mentioned shaft, a miter gear fixed on the first mentioned shaft and arranged in the gear case, a miter gear disposed at a right angle to and intermeshed with the first mentioned miter gear and also arranged in the gear case, and a pitman rod intermediate the second mentioned miter gear and the reciprocatory rod.

3. The combination in a veterinary tooth file, of a tubular handle, a rod guided longitudinally and held against turning in said handle, a file blade holder fixed to the forward end of the said rod and having inwardly directed side flanges, a file blade removably arranged in said holder, a set screw bearing in the back of the holder and against the blade, and means for reciprocating the said rod, file blade holder and the file blade.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LOUIS P. HELM.

Witnesses:
H. H. THOMAS,
EVAN EVANS.